Exhibit 3

U.S. Patent No. 7,620,327
Based on the Pirelli System and Coherent Optical System Design ("Hooijmans")

'327 Patent	Pirelli System and Hooijmans
Claim 1	
[1pre] 1. A transceiver card for a telecommunications box for transmitting data over a first optical fiber and receiving data over a second optical fiber, the card comprising:	To the extent the preamble is limiting, The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures: DWDM Overview: "The Pirelli WaveMux 6400 System is a dense wavelength division multiplexing system that can unidirectionally multiplex up to 32 wavelengths within its 1550-nm transmission window. The system can multiplex 32 channels at 2.5 Gb/s or up to eight channels at 10 Gb/s for a total transmission capacity of 80 Gb/s . . . WaveMux 6400 is fully compatible with existing linear, ring, or mesh network architectures . . . It is also fully compatible with non-dispersion shifted (i.e. Corning SMF-28) and non-zero dispersion shifted (i.e. Coming SMF/LS, Lucent TrueWave™} single-mode fiber types." P. 1-1 "The WaveMux modules are housed in subracks with optical connectors mounted on the backplane and integrated Power distribution. Redundant power is accomplished through backup power supply lines to the subrack. The mechanical design of all system modules enables smooth insertion and extraction via ejectors. The optical backplane eliminates some internal front panel optical connections simplifying cable management and factory pre-configuration. FC/SPC and SC/SPC front panel connectors are available as options." P. 1-10

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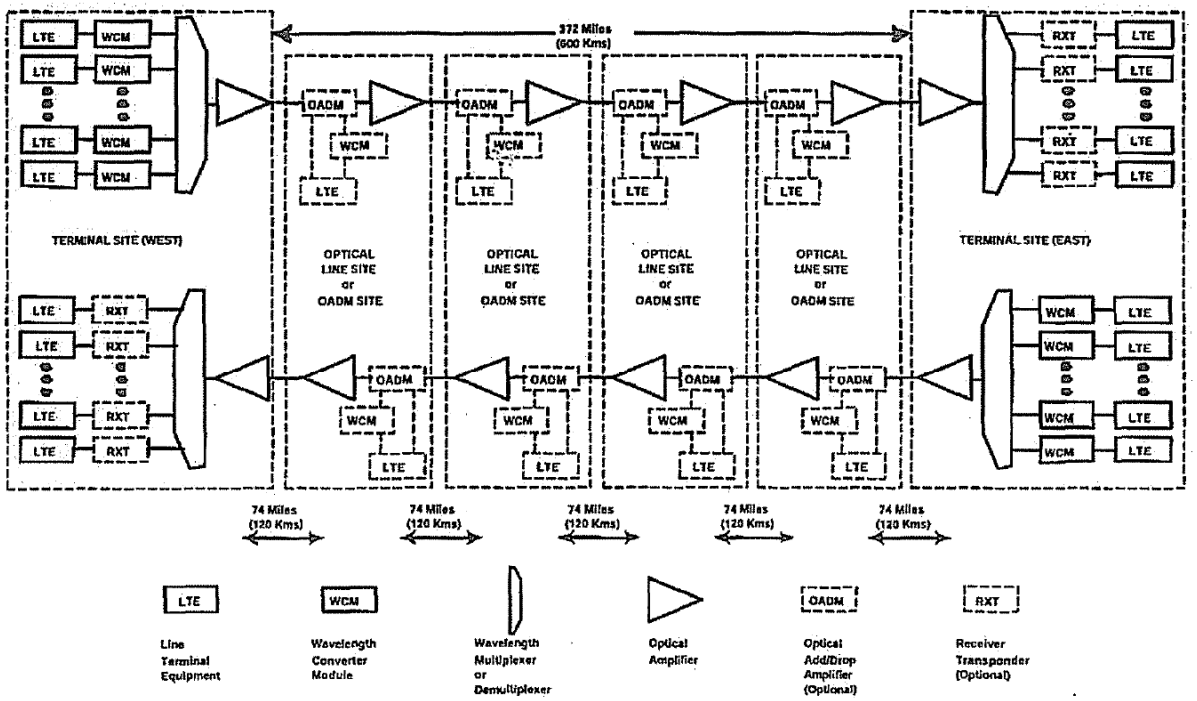
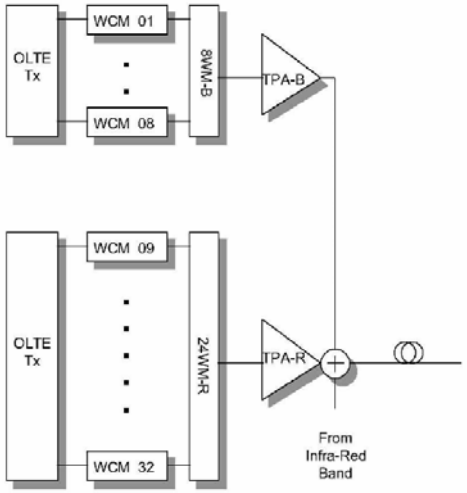
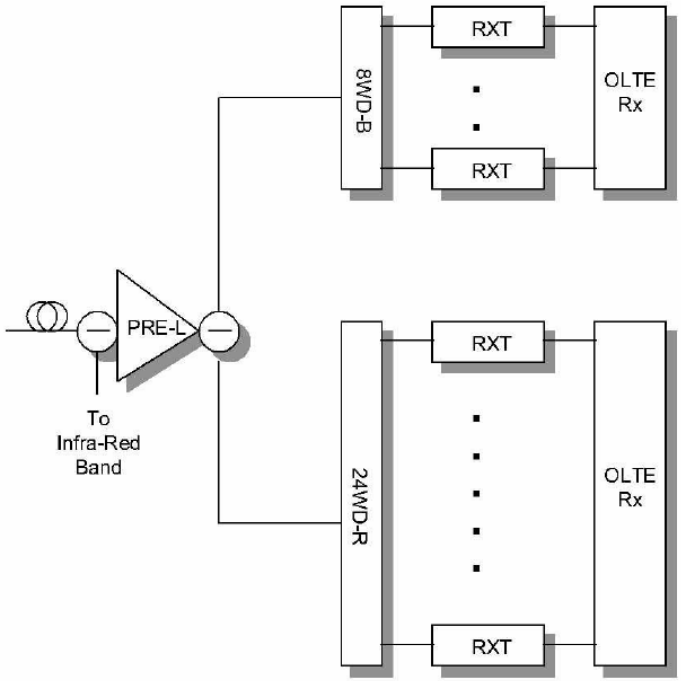
	 ***Figure 1-1: Pirelli WaveMux Optical Amplifier System Block Diagram*** WaveMux Overview: “The WaveMux system is a Hyper-Dense Wavelength Division Multiplexing (HDWDM) and Optical Amplification System in the 1550 nm transmission window. Primarily designed for SONET/SDH transport, the WaveMux system can carry up to 128 channels at 2.5 Gbps (OC-48/STM-16) on a single pair of Single Mode Fibers (ITU-T G.652). The current release allows for 32 channels at 2.5 Gbps and offers a full upgrade path to 64/128 hannels (as described in

’327 Patent	Pirelli System and Hooijmans
	Section 4 and Section 5).” P. 2-1  ***Figure 3-1: Terminal Site (Transmit Direction) - 32 Channel Operation*** P. 3-2

’327 Patent	Pirelli System and Hooijmans
	 ***Figure 3-2: Terminal Site (Receive Direction) - 32 Channel Operation*** P. 3-3 “Optical Subrack (OSR-W) The Optical Subrack incorporates general purpose slots (for the cards), electrical connectors on the top (for power supply, connection of network management platform, etc.), internal bus (for supervision, power, etc.), and back-panel connectors.” P. 4-1

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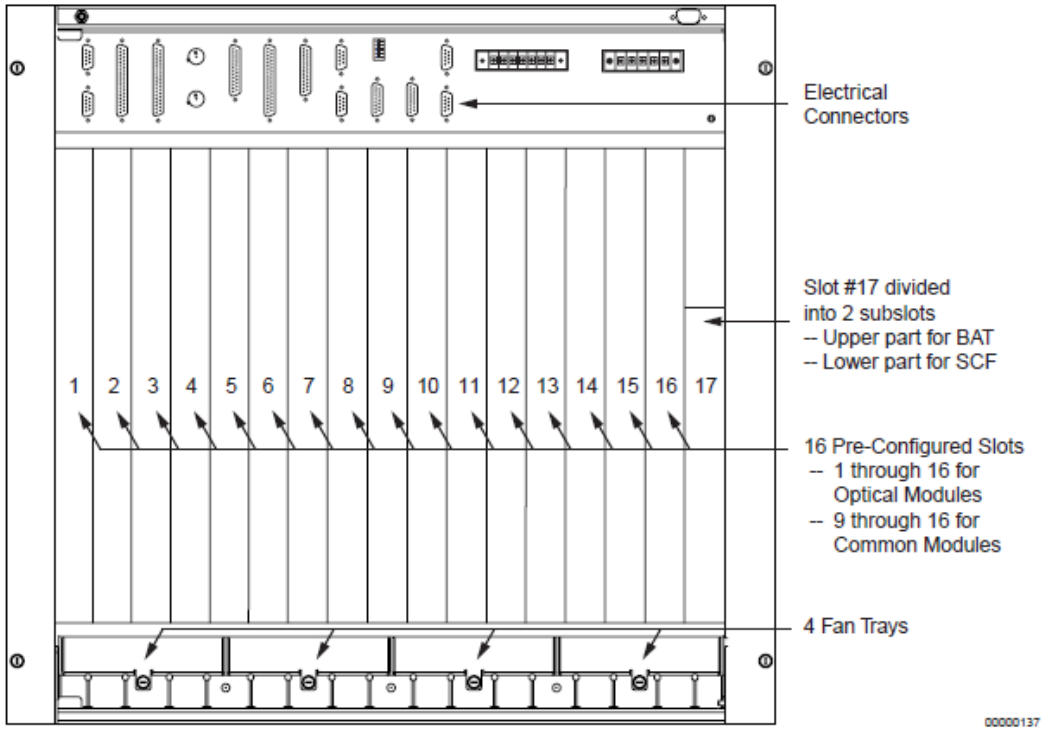
	WaveMux Spec: “All modules, except for the multiplexers, are housed vertically in 23-inch Optical Subracks (OSR-W). Modules are either one, two, or three slots wide and fill the entire slot vertically, except for the BAT and SCF modules that are one slot wide but fit together vertically in slot 17. The Optical Subrack incorporates pre-configured slots (for the cards), electrical connectors on the top (for power supply, connection of network management platform, etc.), internal bus (for supervision, power, etc.), and backpanel connectors.” P. 5-1; Figure 5-1  *Figure 5-1: OSR-W Subrack*

’327 Patent	Pirelli System and Hooijmans
	The nominal dimensions for modules and subracks are listed in the following tables.

UNIT (Optical Modules)	HEIGHT mm [in]	WIDTH mm [in]	DEPTH mm [in]	Weight Kg [lbs]
WCM-EM-Nxx	403 [15.9]	30.2 [1.19]	220 [9]	1.32 [2.92]
WCM-EM-Mxx	403 [15.9]	30.2 [1.19]	220 [9]	1.26 [2.78]
RXT-DM-N	403 [15.9]	30.2 [1.19]	220 [9]	1.54 [3.4]
RXT-DM-M	403 [15.9]	30.2 [1.19]	220 [9]	1.48 [3.26]
LEM-EM-Nxx	403 [15.9]	30.2 [1.19]	220 [9]	1.7 [3.75]
LEM-EM-Mxx	403 [15.9]	30.2 [1.19]	220 [9]	1.6 [3.53]

P. 5-5

“Receive Transponder modules (RXTs) can be placed between the demultiplexer unit and the SONET/SDH equipment. The RXTs are specifically designed to accept low input signal levels, reshape, retime, and regenerate the signal, and offer a fully-compliant SONET Short Reach/SDH Intra-Office interface.” P. 2-1

WaveMux Brochure:

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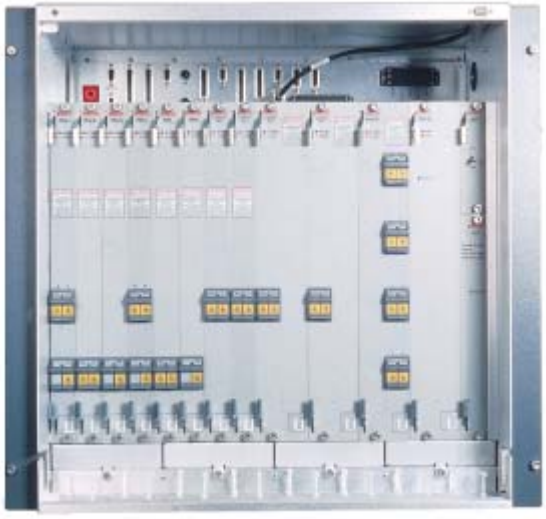
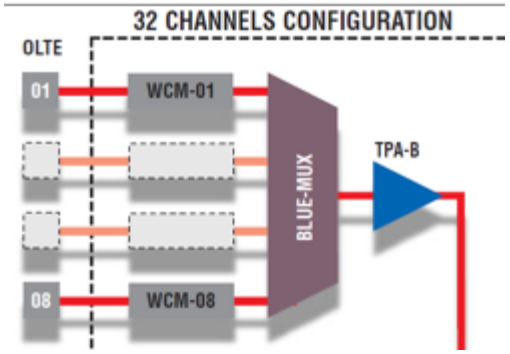
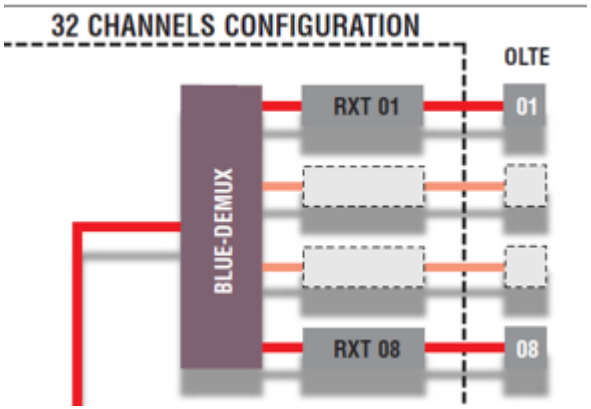
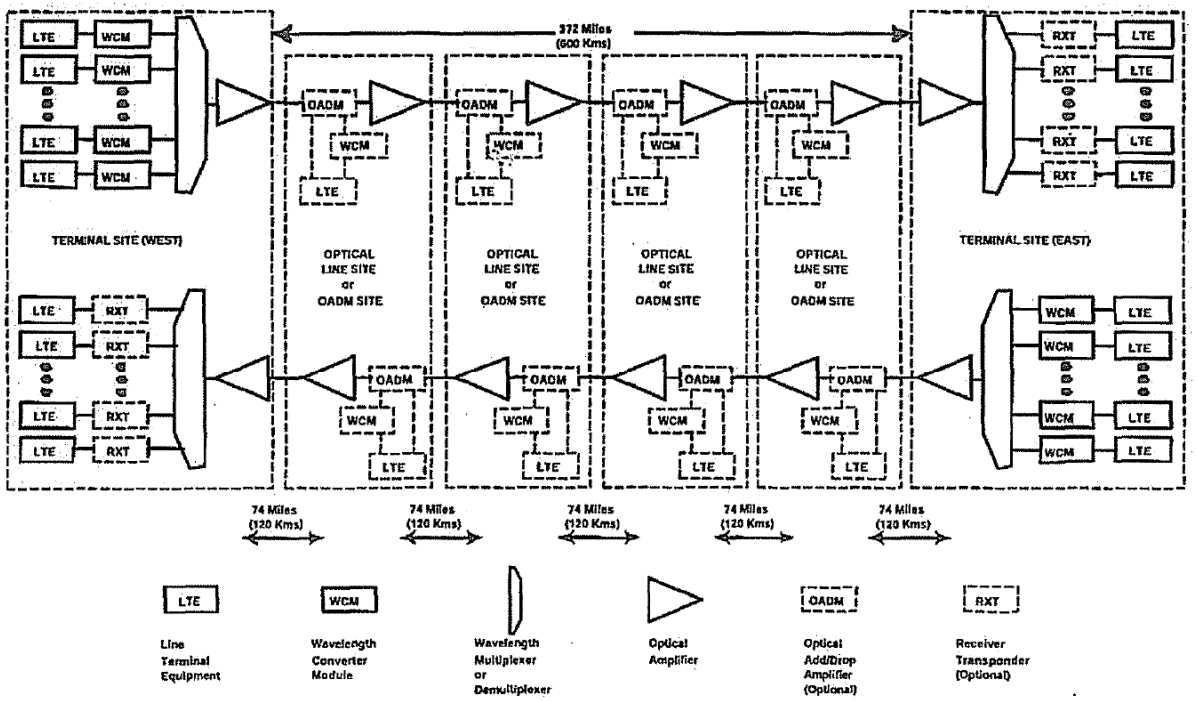
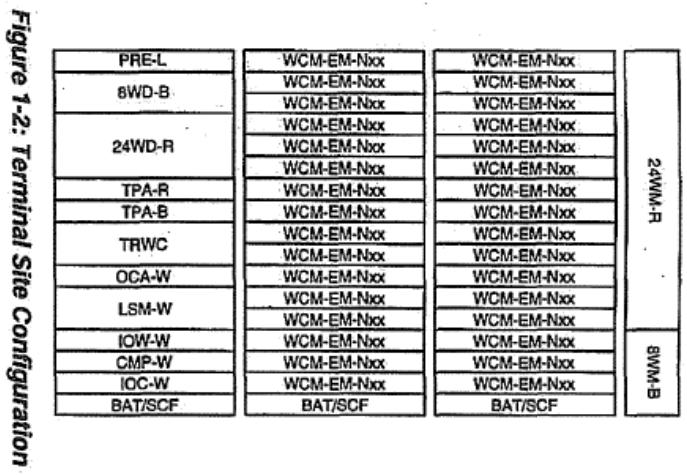
’327 Patent	Pirelli System and Hooijmans
	 

’327 Patent	Pirelli System and Hooijmans
	 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of WaveMux System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
[1a] a transmitter for transmitting data over the first optical fiber, the transmitter having a laser, a modulator, and a controller receiving input data and controlling the modulator as a function of the input data, the transmitter transmitting optical signals for telecommunication as a function of the input data;	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures: DWDM Overview: “WaveMux6400 . . . can be used with any digital transmission format, including RZ transmission standards.” P. 1-1

’327 Patent	Pirelli System and Hooijmans
	 ***Figure 1-1: Pirelli WaveMux Optical Amplifier System Block Diagram*** “Wavelength Converter Module - Externally Modulated - Normal (WCM-EM-Nxx) converts the Optical Line Terminal Equipment transmitter wavelength to a pre-selected wavelength for compatibility with Dense Wavelength Division Multiplexer equipment. WCM-EM-Nxx is a Lithium Niobate, externally modulated, distributed feedback, re-transmitter module that accepts optical inputs in the 1310 and 1550 nm transmission windows. The output wavelength of the WCM-EM-Nxx is on the 100 GHz grid referenced to 193.1THz as outlined by ITU-T Study Group 15, G.mcs Standard. WCM-EM-Nxx's are optimized for OC48/STM-16 transmission rates.” P. 1-5

’327 Patent	Pirelli System and Hooijmans
	 Figure 1-2: Terminal Site Configuration PRE-L, 8WD-B, 24WD-R, TPA-R, TPA-B, TRWC, OCA-W, LSM-W, IOW-W, CMP-W, IOC-W, BAT/SCF WCM-EM-Nxx 24WM-R 8WM-B WaveMux Spec: “Wavelength Converter Module - Externally Modulated – Normal (WCM-EM-Nxx) and B1 Byte (WCM-EM-Mxx) Wavelength Converter Module - Externally Modulated - Normal (WCM-EM-Nxx) converts the OLTE (Optical Line Termination Equipment) transmitter wavelength to a pre-selected wavelength compatible with Hyper-DWDM equipment. WCM-EM-Nxx accepts optical inputs in the 1310 and 1550 nm transmission windows. WCM-EM-Nxx modules are optimized for 0C-48/STM-16 transmission rates. An analog WCM-EM-Nxx is available for all transmission formats at bit rates lower than 2.5 Gb/s. The Wavelength Converter Module - Externally Modulated — B1 Byte (WCM-EM-Mxx) also monitors the B1 Byte of the SDH frame (non-intrusive monitoring) and passes the B1 Byte message to the supervision software for performance management and fault management.” P. 3-1

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The operating parameters for the WaveMux optical transmission modules are:

Transponders

Input Modulation Present/Absent
Output Modulation Present/Absent
Input Power Level
Output Power Level
Laser Source Temperature
Laser Source Bias Current
Laser Source Power

P. 4-1

“Table 4-1 : Wavelength Converter Module (WCM-EM-N and WCM-EM-M) Alarms:

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items)			Alarm			
				Value	Meas Unit	Type and Criteria	Thres.	Value	Meas Unit	Severity
Laser Operating Temp.	LasTemp 1	A	C	T_op	°C	FAIL	Low	T_op - 2	°C	Major
						FAIL	High	T_op + 2	°C	Major
Laser Current	LasCurr1	A	C	I_op	mA	DEGRADE	High	I_op * 1,2	mA	minor
						FAIL	High	I_op * 1,4	mA	Major
Laser Power	LasPwr1	A	C	P_op	mW	DEGRADE	Low	P_op * 0.8	mW	minor
						DEGRADE	High	P_op * 1.2	mW	minor

‘510 Patent:

“The optical-signal transmitting station comprises generation means for generating transmission signals at least two 10 wavelengths included in a band of predetermined width . . . In particular,

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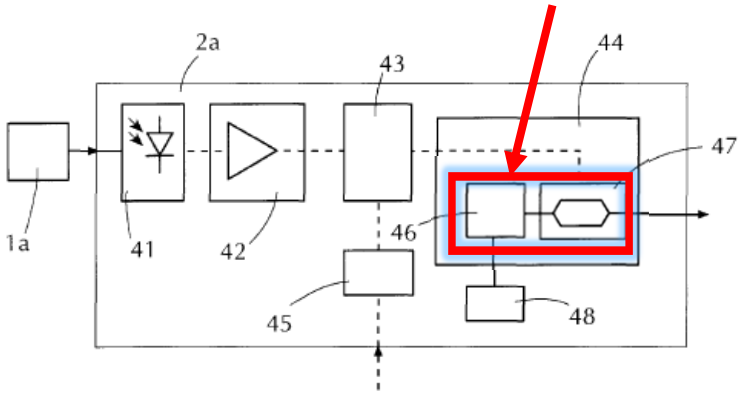
	said generation means for generating transmission signals comprises, for each of said transmission signals, a continuous-emission laser associated with an external modulator.” 4:8-10, 4:66-5:2 “The electric output signal from the amplifier 42 is fed to a piloting circuit 43 of a modulated laser emitter, generally identified by 44, which is adapted to generate an optical signal at the selected wavelength containing the input signal information . . . The modulated laser emitter 44 comprises a laser 46 and an external modulator 47, of the Mach-Zender type for example, piloted by the output signal from circuit 43. A circuit 48 controls the emission wavelength of laser 46, keeping it constant to the previously selected value and compensating for possible external disturbances, such as temperature and the like.” 7:61-8:7; FIG. 29:  FIG. 29 “[A]n optical signal transmitting station comprising optical signal generating means for simultaneously generating at least two optical transmission signals at two different wavelengths in a band of predetermined width” cl. 1 “wherein said generating means of said transmitting station further comprises optical signal generating means controlled by said electrical signals for providing said optical transmission

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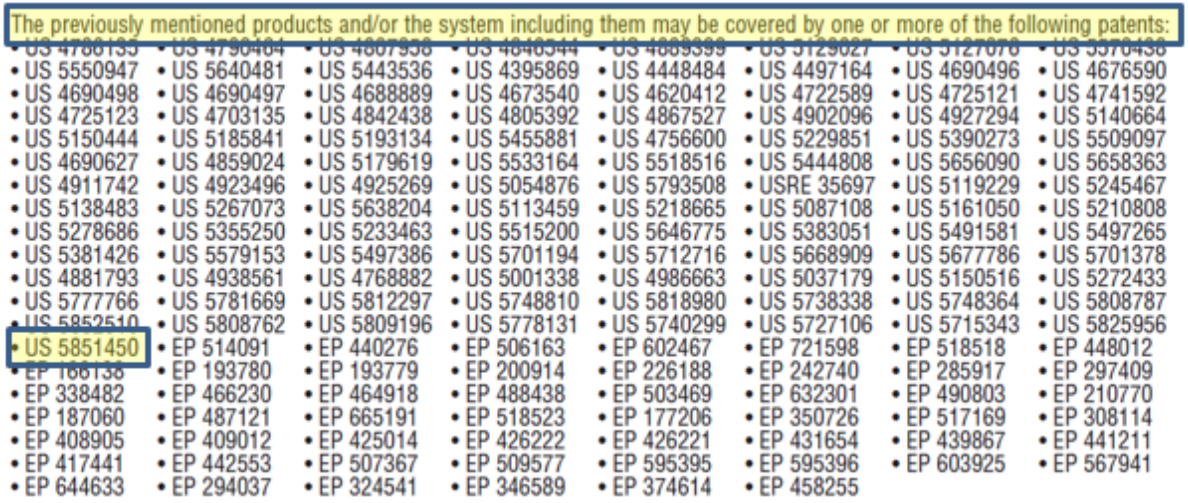
	signals” cl. 2 “The system of claim 1, wherein said generating means comprises continuous-emission lasers coupled to modulators for generating said optical transmission signals.” cl. 8 WaveMux Brochure:  The previously mentioned products and/or the system including them may be covered by one or more of the following patents: • US 5550947 • US 5640481 • US 5443536 • US 4395869 • US 4448484 • US 4497164 • US 4690496 • US 4676590 • US 4690498 • US 4690497 • US 4688889 • US 4673540 • US 4620412 • US 4722589 • US 4725121 • US 4741592 • US 4725123 • US 4703135 • US 4842438 • US 4805392 • US 4867527 • US 4902096 • US 4927294 • US 5140664 • US 5150444 • US 5185841 • US 5193134 • US 5455881 • US 4756600 • US 5229851 • US 5390273 • US 5509097 • US 4690627 • US 4859024 • US 5179619 • US 5533164 • US 5518516 • US 5444808 • US 5656090 • US 5658363 • US 4911742 • US 4923496 • US 4925269 • US 5054876 • US 5793508 • USRE 35697 • US 5119229 • US 5245467 • US 5138483 • US 5267073 • US 5638204 • US 5113459 • US 5218665 • US 5087108 • US 5161050 • US 5210808 • US 5278686 • US 5355250 • US 5233463 • US 5515200 • US 5646775 • US 5383051 • US 5491581 • US 5497265 • US 5381426 • US 5579153 • US 5497386 • US 5701194 • US 5712716 • US 5668909 • US 5677786 • US 5701378 • US 4881793 • US 4938561 • US 4768882 • US 5001338 • US 4986663 • US 5037179 • US 5150516 • US 5272433 • US 5777766 • US 5781669 • US 5812297 • US 5748810 • US 5818980 • US 5738338 • US 5748364 • US 5808787 • US 5852510 • US 5808762 • US 5809196 • US 5778131 • US 5740299 • US 5727106 • US 5715343 • US 5825956 • US 5851450 • EP 514091 • EP 440276 • EP 506163 • EP 602467 • EP 721598 • EP 518518 • EP 448012 • EP 166138 • EP 193780 • EP 193779 • EP 200914 • EP 226188 • EP 242740 • EP 285917 • EP 297409 • EP 338482 • EP 466230 • EP 464918 • EP 488438 • EP 503469 • EP 632301 • EP 490803 • EP 210770 • EP 187060 • EP 487121 • EP 665191 • EP 518523 • EP 177206 • EP 350726 • EP 517169 • EP 308114 • EP 408905 • EP 409012 • EP 425014 • EP 426222 • EP 426221 • EP 431654 • EP 439867 • EP 441211 • EP 417441 • EP 442553 • EP 507367 • EP 509577 • EP 595395 • EP 595396 • EP 603925 • EP 567941 • EP 644633 • EP 294037 • EP 324541 • EP 346589 • EP 374614 • EP 458255 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
[1b] a fiber output optically connected to the laser for connecting the first optical fiber to the card;	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures:

’327 Patent	Pirelli System and Hooijmans
	DWDM Overview: “WaveMux 6400 is fully compatible with existing linear, ring, or mesh network architectures . . . It is also fully compatible with non-dispersion shifted (i.e. Corning SMF-28) and non-zero dispersion shifted (i.e. Coming SMF/LS, Lucent TrueWave™) single-mode fiber types.” P. 1-1; FIG. 1-1. “The WaveMux modules are housed in subracks with optical connectors mounted on the backplane.” P. 1-10; FIGS. 1-2, 1-3; WaveMux Spec: “The backpanel of the subrack houses . . . optical connectors for factory pre-configuration of the links between the modules . . . The optical backplane eliminates some internal front panel optical connections simplifying cable management and factory pre-configuration. FC/SPC and SC/SPC front panel connectors are available as options.” P. 5-1; FIG. 5-1 “5.3.5 Optical Connectors Front connectors on the modules are SC/SPC (Super Polish) connectors. They are angled down and have mechanical shutters to provide protection against exposure to potentially harmful laser light. Connectors on the backplane are Diamond E-2000 type. They are fiber optic connectors with automatic closures and permit easy mating and demating.” P. 5-6 ‘510 Patent: “[T]he transmitting station includes signal generator for generating signals at several wavelengths, and connections for conveying the signals to a single optical fiber line.” Abstract “Said optical work signals are therefore fed to a signal combiner 3, adapted to simultaneously send, in a single optical output fibre 4, the work signals at their wavelengths. In general, the signal combiner 3 is a passive optical device by which the optical signals transmitted over

’327 Patent	Pirelli System and Hooijmans
	respective optical fibres are superposed in a single fibre. Devices of this type consist for example of fused-fibre couplers, in planar optics, microoptics and the like. By way of example, an appropriate combiner is a 1x4 SMTC-OI04-1550-A-H type available from E-TEK DYNAMICS INC., 1885 Lundy Ave, San Jose, Calif. (USA).” 8:13-24; FIG. 1 “an optical fiber line connecting said transmitting and receiving stations for simultaneously transmitting both of said optical transmission signals from said transmitting station to said receiving station.” Cl. 1 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
[1c] a fiber input for connecting the second optical fiber to the card;	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures: DWDM Overview: “The WaveMux modules are housed in subracks with optical connectors mounted on the backplane.” P. 1-10; FIGS. 1-2, 1-3; WaveMux Spec: “The backpanel of the subrack houses . . . optical connectors for factory pre-configuration of the links between the modules . . . The optical backplane eliminates some internal front panel optical connections simplifying cable management and factory pre-configuration. FC/SPC and SC/SPC front panel connectors are available as options.” P. 5-1; FIG. 5-1 “5.3.5 Optical Connectors

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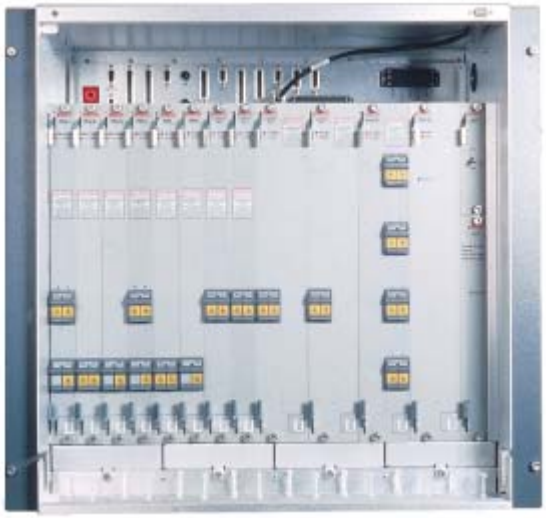
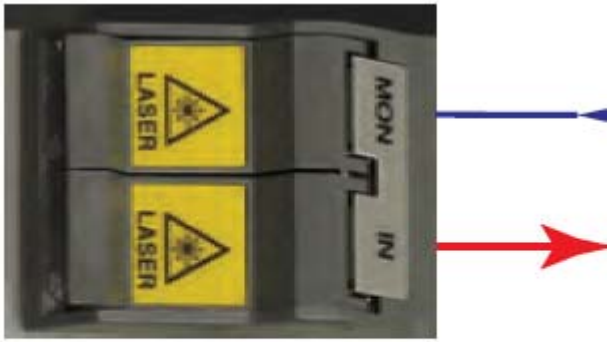
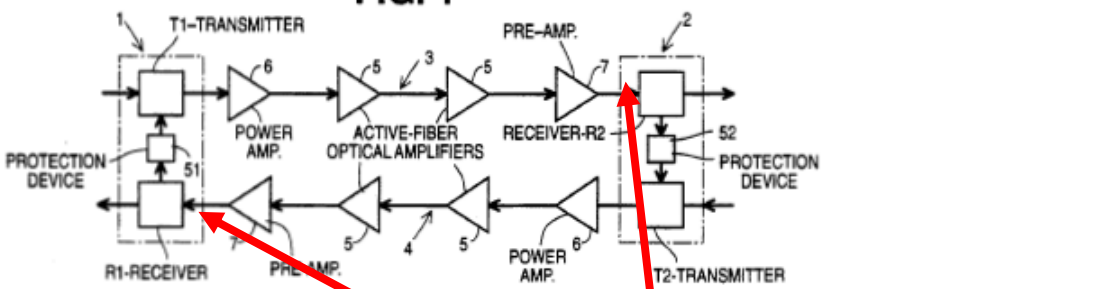
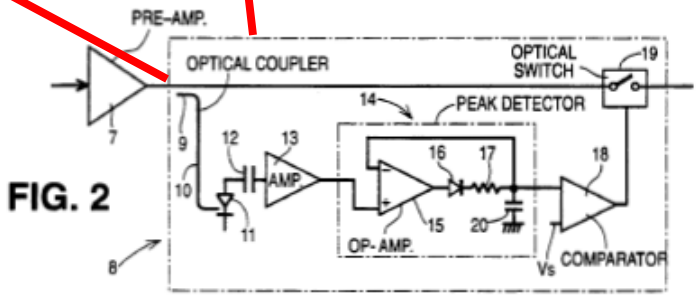
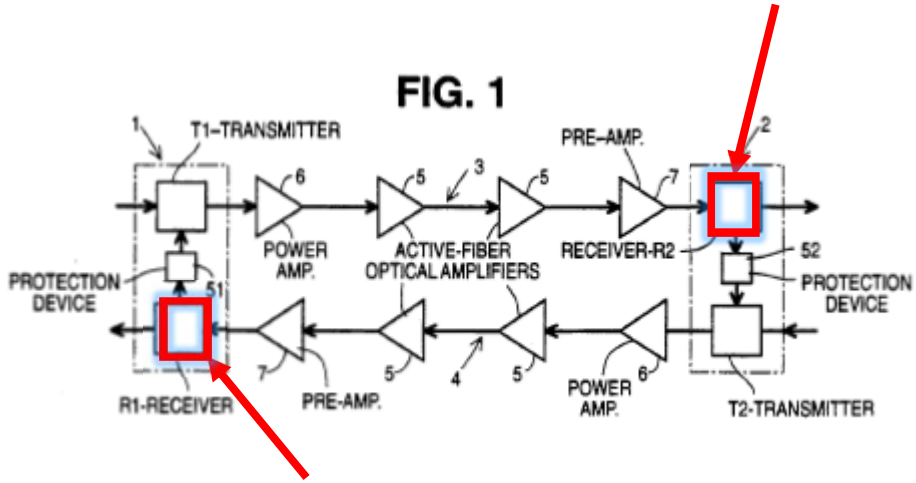
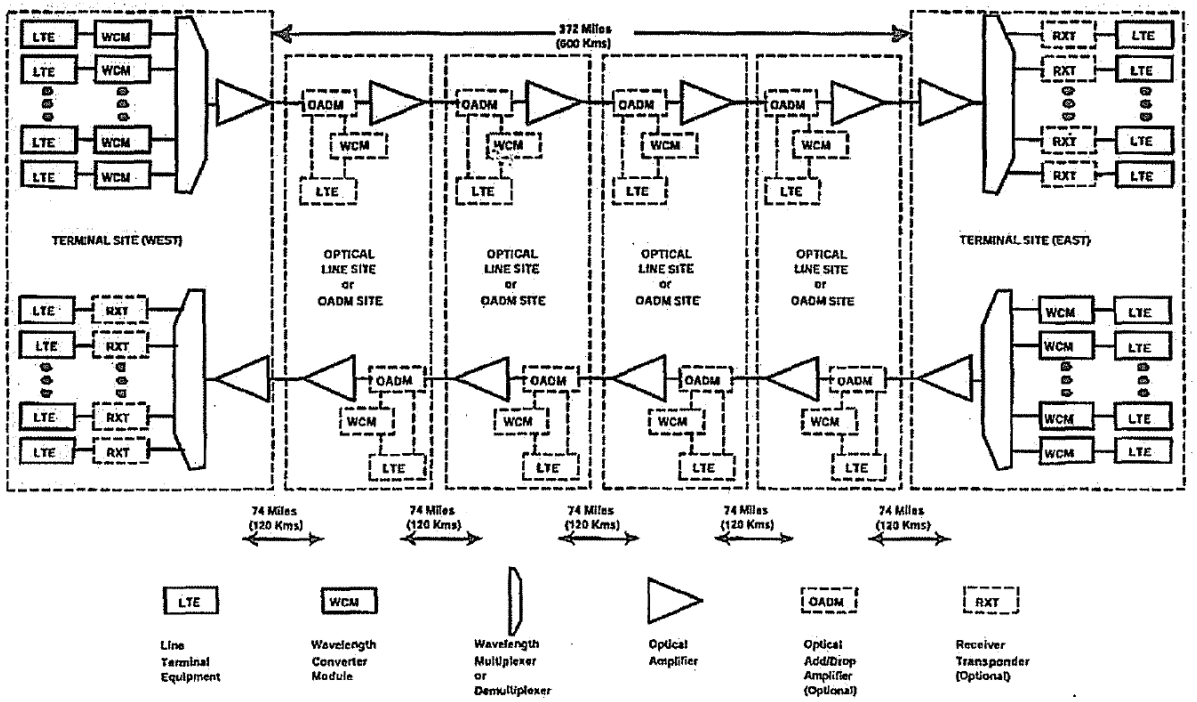
	Front connectors on the modules are SC/SPC (Super Polish) connectors. They are angled down and have mechanical shutters to provide protection against exposure to potentially harmful laser light. Connectors on the backplane are Diamond E-2000 type. They are fiber optic connectors with automatic closures and permit easy mating and demating.” P. 5-6 WaveMux Brochure:  P. 3

’327 Patent	Pirelli System and Hooijmans
	 Ports on Face Plate (Image Rotated) ‘686 Patent: FIGS. 1, 2

’327 Patent	Pirelli System and Hooijmans
	FIG. 1  FIG. 2  One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
[1d] a receiver optically connected to the fiber input for receiving data from the second optical fiber; and	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures:

’327 Patent	Pirelli System and Hooijmans
	DWDM Overview: “1.2.3 Receive Transponder – Directly Modulated. Normal (RXT-DM-N) Receive Transponder - Directly Modulated - Normal (RXT-DM-N) receives SONET or SDH signal from the demultiplexing modules. RXT-DM-N also guarantees SONET or SDH interoperability. WaveMux Spec: “Receive Transponder modules (RXTs) can be placed between the demultiplexer unit and the SONET/SDH equipment. The RXTs are specifically designed to accept low input signal levels, reshape, retime, and regenerate the signal, and offer a fully-compliant SONET Short Reach/SDH Intra-Office interface.” P. 2-1; *see also id.* 3-2, 4-3. ‘510 Patent: “The receiving station comprises . . . separation means for separating said transmission signals from said single optical-fibre line . . . conversion means for converting said received signals to an electronic form.” 4:39, 42-43 “A multi-wavelength optical telecommunication system comprising . . . a receiving station for receiving said optical transmission signals . . . said receiving station further comprising separation means for separating said optical transmission signals received from said optical fiber line.” cl. 1 “wherein said receiving station further comprises conversion means for converting said optical transmission signals separated by said separating means into electrical signals” cl. 2 Figs. 1 & 2; ‘686 Patent:

’327 Patent	Pirelli System and Hooijmans
	FIG. 1  “The transmitter Tl of the station 1 is connected to the receiver R2 of the station 2 through a first optical-fiber line 3 which can operate in one direction (from 1 toward 2) and the transmitter T2 of the station 2 is connected to the receiver Rl of the station 1 through a 55 second optical-fiber line 4 destined to operate in the opposite direction (from 2 toward 1).” 3:51-57 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
[1e] an energy level detector optically connected between the receiver and the fiber input to measure an energy level of the	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. For example, see the following passages and/or figures, as well as all related disclosures:

’327 Patent	Pirelli System and Hooijmans
optical signals, wherein the energy level detector includes a plurality of thresholds.	DWDM Overview:  ***Figure 1-1: Pirelli WaveMux Optical Amplifier System Block Diagram*** FIG. 1-1; WaveMux Spec: “Receive Transponder modules (RXTs) can be placed between the demultiplexer unit and the SONET/SDH equipment. The RXTs are specifically designed to accept low input signal levels, reshape, retime, and regenerate the signal, and offer a fully-compliant SONET Short Reach/SDH

’327 Patent	Pirelli System and Hooijmans
	Intra-Office interface.” P. 2-1 “The operating parameters for the WaveMux optical transmission modules are: Input Power Level Output Power Level” p. 4-2

’327 Patent	Pirelli System and Hooijmans

Table 4-2 : **Receive Transponders (RXT-DM-N and RXT-DM-M) Alarms**

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items)				Alarm		
				Value	Meas. Unit	Type and Criteria	Thres.	Value	Meas. Unit	Severity*
Laser Current	LasCurr1	A	C	I_op	mA	DEGRADE	High	60	mA	minor
						FAIL	High	70	mA	Major
Laser Power	LasPwr1	A	C	P_op	mW	DEGRADE	Low	P_op * 0.7	mW	minor
						DEGRADE	High	P_op * 1.4	mW	minor
Output Power	OutPwr1	A	M	P_out	dBm	DEGRADE	Low	P_op - 1.5	dBm	minor
						DEGRADE	High	P_op + 1.5	dBm	minor
nput Power	InpPwr1	A	M	-		FAIL	Low	**Note 2**	mW (dBm)	Major
						FAIL	High	**Note 2**	mW (dBm)	Major
Loss of signal	los status 1	D	C	OFF				ON		Major
Input modulation Fail	modin stat 1	D	C	ON				OFF		Major
IPO IN	ipoin stat 1	D	C							Not def.
IPO OUT	ipoout stat 1	D	C							Not def.
OPIN	opin stat 1	D	C							Not def.
PINLOW	pinlow stat 1	D	C	OFF				ON		Major
SHUTDOWN RELAY	Rel.LasOff 1	D	M							

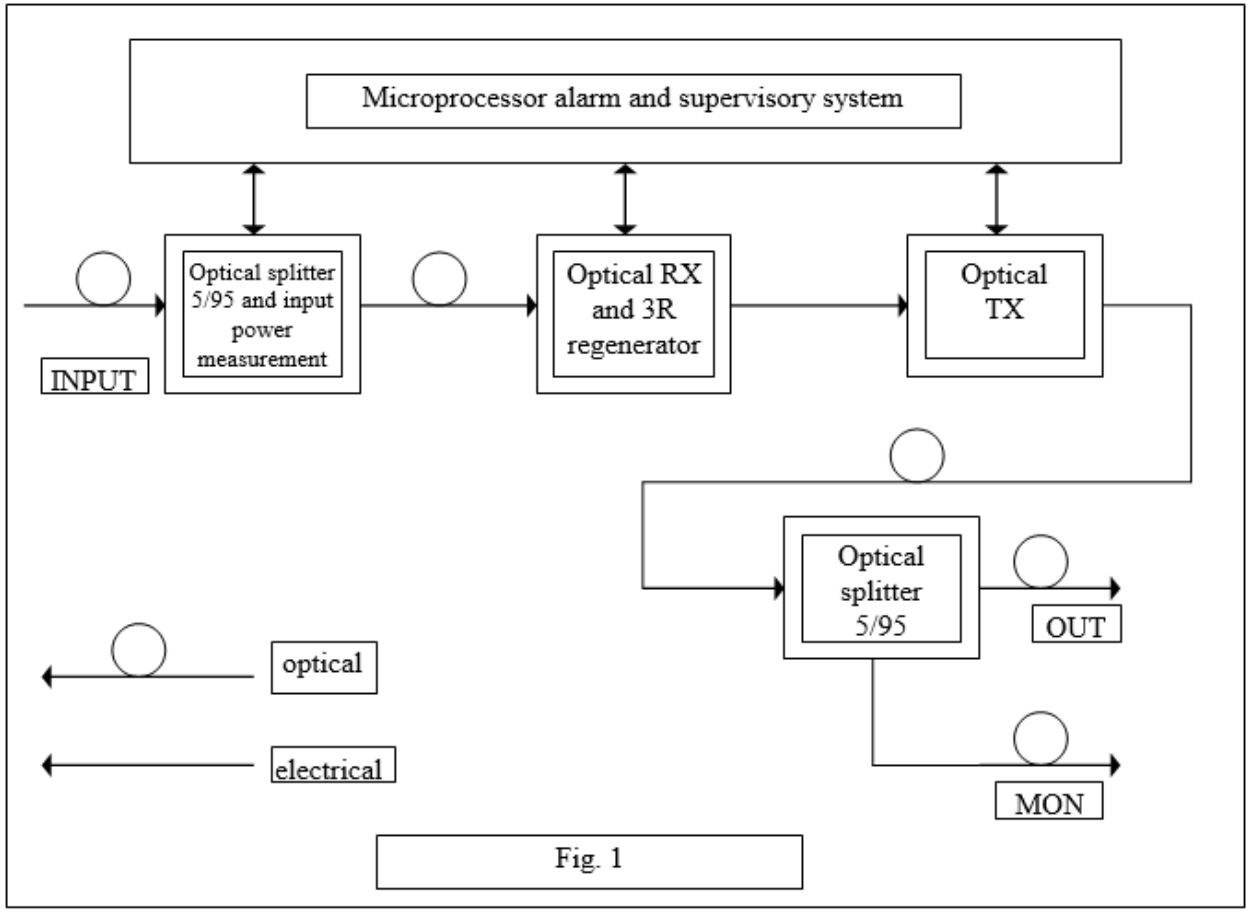
« Monitored or Controlled
† Analog or Digital

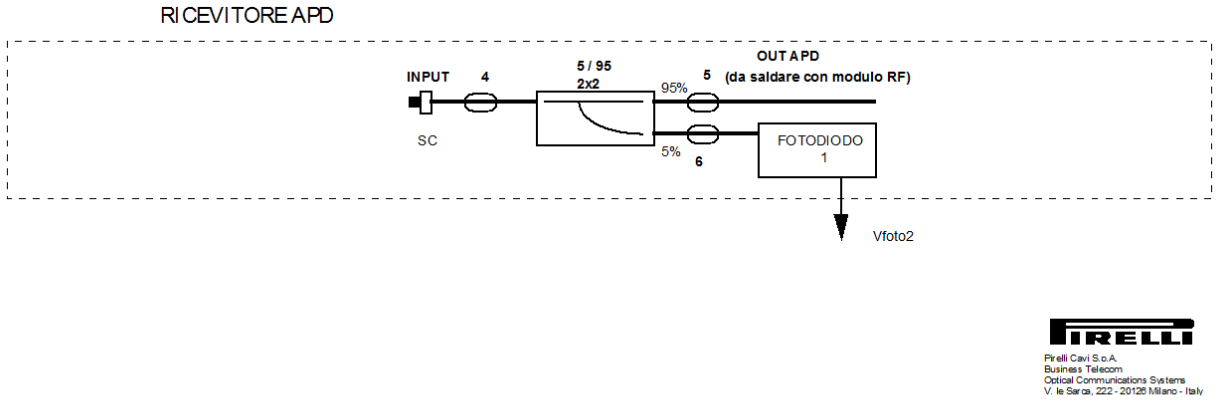
Note 2 – Input power alarms for TX/RX modules Low 0.00125 (-29)
High 0.2 (-7)

P. 4-3
WaveMux 1999 Specification:

S 1 - Optical Channel Protection.

’327 Patent	Pirelli System and Hooijmans
	The Och card (OSU) will be inserted on the path of the channels to be protected, before the WCM/LEM interfaces, and after the RXT interfaces. The OSU card shall commute between working and protect, based on detection of LOS caused by switching down of the RXT card when it senses an input modulation fail. EBSCO 1998 at 11 (PR Newswire, “Pirelli Introduces Optical Channel Protection On WaveMux(TM) DWDM Platform,” Feb. 22, 1999): “Pirelli Cables and Systems North America announces the introduction of an automatic protection switching feature on its advanced WaveMux(TM) DWDM platform. The OSU-W module, integral to the WaveMux(TM) system, provides protection switching for IP routers and ATM switches connected directly to the DWDM system. It causes the WaveMux(TM) system to switch data traffic to a protection channel within 50 milliseconds of a fiber break. In addition, if a customer is using a WaveMux(TM) system with some channels operating over SONET and some over IP, the OSU will protect the IP traffic while allowing the SONET layer to perform its own protection.” RXT Spec:

’327 Patent	Pirelli System and Hooijmans
	 P. 19

’327 Patent	Pirelli System and Hooijmans
	 Figure 5. P. 22 RXT Handbook:

’327 Patent	Pirelli System and Hooijmans

5.3 Software Configuration

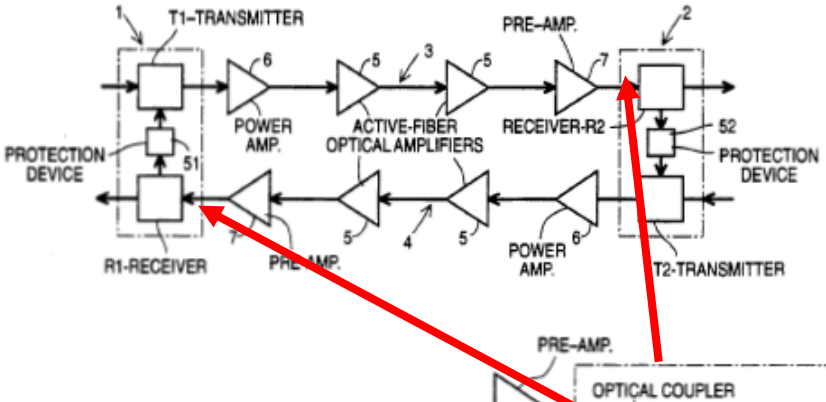
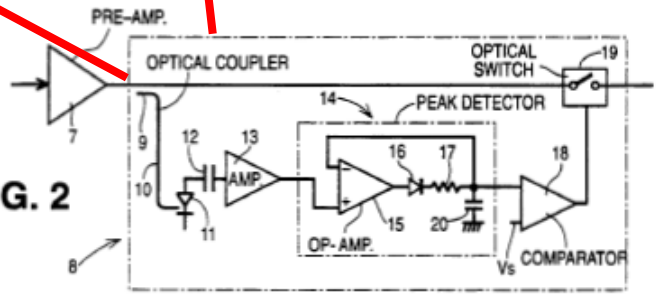
The following measurement points are available to the WaveLook software.

The values shown in Table 5-1 are factory preset, but it is possible to configure them using a software operation.

Table 5-1: Software Configuration

Parameter	*Point*	*Setpoint*		*Alarm*		
		Value	*Reference*	*Threshold*	*Value*	*Type*
Temperature	LasTemp1	T_op	Component Specification	Low	T_op -2°C	Major
				High	T_op +2°C	Major
Current	LasCur1	I_op	Component Specification	High	60 mA	minor
				High	70 mA	Major
Power (P_op)	LasPwr1	P_op	Component Specification	Low	P_op * 0.7 mW	minor
				High	P_op * 1.4 mW	minor
	OutPwr1	P_out	Between –8 dBm and –3 dBm	Low	P_op –1.5 dBm	minor
		P_out	Between –8 dBm and –3 dBm	High	P_op +1.5 dBm	minor
	InpPwr1			Low	0.00125 mW (-29 dBm)	Major
				High	0.2 mW (-7 dBm)	Major
Loss of signal	los status 1	OFF			ON	Major
Input modulation	modin stat 1	ON			OFF	Major
PINLOW	pinlow stat 1	OFF			ON	Major

P. 5-4

’327 Patent	Pirelli System and Hooijmans
	‘686 Patent: “In the case of an intervention on a line fibre, say, in the presence of a breakage thereof, it is necessary to avoid the presence of light emission in the fibre, because such emission could accidentally be directed toward the **eyes** of the maintenance staff, with consequent offence for their eyes.” 1:54-59 FIGS. 1-2: FIG. 1  FIG. 2  “The terminal stations 1 and 2 are provided with automatic protection devices 51, 52 of the

’327 Patent	Pirelli System and Hooijmans
	traditional type, which in the absence of a signal at the input to the receiver on a line cause the shutting down of the transmitter operating on the opposite line. According to the present invention, as illustrated in FIG. 2 . . . there is associated a protection device 8 which comprises a coupler 9, say, of the fused-fibre type with a shunted optical waveguide 10 . . . an optical photodiode detector 11 . . . a peak detector 14, a comparator 18 with reference threshold Vs and an optical switch 19 which the comparator 18 causes to open each time the peak detector 14 detects that an optical signal at output from the pre-amplifier has an alternating component with a peak value lower than the threshold Vs. The peak detector is, for example, constituted by an backfed operational amplifier 15, whose output is connected to the comparator 18 through a diode 16, and a resistance 17 and is connected to ground by a condenser 20. The optical signal taken by the coupler 9 is converted by the photodiode 11 into a corresponding electrical signal, from which the condenser 12 withdraws the continuous component and that is subsequently amplified by the amplifier 13 . . . The withdrawal of the continuous component allows the protection device to distinguish between the transmitted optical signal, which contains a substantial alternating component, and a spontaneous emission, having a continuous component of a high level, while its alternating component has an appreciably lower level.” 4:1-54 “The signal, filtered by the condenser 12, is amplified by the amplifier 13, for example up to levels around 1 volt, and then applied across the input of the peak detector 14, whose output is a continuous signal level, which varies, for example, from about 200 m V in the 20 presence of the spontaneous emission only to at least 600 m V in the presence of a transmitted optical signal, even if of a low level (-45 dB). This difference in level determines the triggering, in one direction or the other, of the comparator 18, whose intervention threshold can indicatively be placed around 400 mV. When it recognizes the absence of a signal, the comparator 18 opens the optical switch 19, for example, constituted by a "Switch Module 11" produced by JDS 30 Optics.” 5:16-31 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or

<table>
<tr><th>’327 Patent</th><th>Pirelli System and Hooijmans</th></tr>
<tr><td></td><td>in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.</td></tr>
<tr><td colspan="2">Claim 5</td></tr>
<tr><td>5. The card as recited in claim 1 wherein the energy level detector includes a photodiode and a liner or logarithmic amplifier scaling an output of the photodiode.</td><td>The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation.

See above re claim 1 which is incorporated by reference herein.

See also:

See above re claim 1e which is incorporated by reference herein.

RXT Spec:

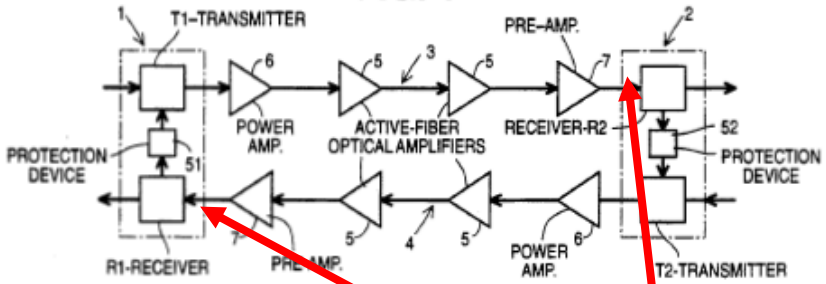
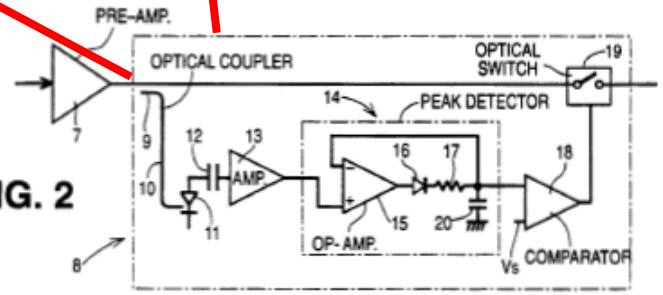
3.2.2.2 Input power limits

In syntesis, the following table presents the input power on the APD (and monitor PIN) vs. the input power connected to the IN connector:

<table>
<tr><th>Input power at the connector</th><th>Input power on the APD</th><th>Used Trans-Z (Mohm)</th><th>Trans-Z Vout (V)</th><th>Power on PIN for Pin measur.</th></tr>
<tr><td>-8 dBm</td><td>-8.3 dBm</td><td>0.1</td><td>0.71</td><td>-21 dBm</td></tr>
<tr><td>-18 dBm</td><td>-18.3 dBm</td><td>1</td><td>0.71</td><td>-31dBm</td></tr>
<tr><td>-28 dBm</td><td>-28.3 dBm</td><td>10</td><td>0.71</td><td>-41 dBm</td></tr>
</table>

</td></tr>
</table>

’327 Patent	Pirelli System and Hooijmans
	PIRELLI Pirelli Optical Systems DOCUMENT N°: TCS 1403465 REVISION: 03 SHEET N°: 10 of 22 -35 dBm | -35.3 dBm | 10 | 0.14 | -48 dBm The firmware will be able to detect which optical input is currently used, just looking at the input power level on the PIN. And so it will be furtherly able to identify which follows: -15 / -28: 100 Kohm -25 / -38: 1 Mohm -35 / -48: 10 Mohm ‘686 Patent: FIGS. 1-2:

’327 Patent	Pirelli System and Hooijmans
	FIG. 1  FIG. 2  “According to the present invention, as illustrated in FIG. 2 . . . there is associated a protection device 8 which comprises . . . an optical photodiode detector 11 . . . a peak detector 14, a comparator 18 with reference threshold Vs and an optical switch 19 which the comparator 18 causes to open each time the peak detector 14 detects that an optical signal at output from the pre-amplifier has an alternating component with a peak value lower than the threshold Vs. The peak detector is, for example, constituted by an backfed operational amplifier 15, whose output is connected to the comparator 18 through a diode 16, and a resistance 17 and is connected to ground by a condenser 20. The optical signal taken by the coupler 9 is converted by the photodiode 11 into a corresponding electrical signal, from which the condenser 12 withdraws the continuous component and that is subsequently amplified by the amplifier 13 . . . The

’327 Patent	Pirelli System and Hooijmans
	withdrawal of the continuous component allows the protection device to distinguish between the transmitted optical signal, which contains a substantial alternating component, and a spontaneous emission, having a continuous component of a high level, while its alternating component has an appreciably lower level.” 4:1-54 “The signal, filtered by the condenser 12, is amplified by the amplifier 13, for example up to levels around 1 volt, and then applied across the input of the peak detector 14, whose output is a continuous signal level, which varies, for example, from about 200 m V in the 20 presence of the spontaneous emission only to at least 600 m V in the presence of a transmitted optical signal, even if of a low level (-45 dB). This difference in level determines the triggering, in one direction or the other, of the comparator 18, whose intervention threshold can indicatively be placed around 400 mV. When it recognizes the absence of a signal, the comparator 18 opens the optical switch 19, for example, constituted by a "Switch Module 11" produced by JDS 30 Optics.” 5:16-31 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.
Claim 10	
10. The card as recited in claim 1 wherein the plurality of thresholds indicate a drop in amplitude of a phase-modulated signal.	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. See above re claim 1 which is incorporated by reference herein. See also: See above re claim 1e, which is incorporated by reference herein. WaveMux Spec:

’327 Patent	Pirelli System and Hooijmans
	4.1 Supervisory Unit CMP-W Each WaveMux system site has at least one Control and Monitoring Processor Module (CMP-W), the heart of the management system. It controls all the modules at the site (optical modules as well as common modules), collects module information on one internal control bus (status, alarms, parameters, actions), and passes this information to: • a serial RS232 port to which the Local Craft Terminal can be connected. • an Ethernet bus to which: – Pirelli IEMS Software can be connected (via Q3 interface), or – Pirelli WaveLook Software can be connected using a PC with an Ethernet interface. CMP-W Module Parameters: CPU — Intel Pentium 133 MHz Memory/Interruptions/DMA Controller — Intel 82430HX (Triton II) PC/AT Memory — DRAM 16-32-64 or 128 MByte Cache — SRAM 256 kByte Internal Control BUS — PCI-based Ethernet HDLC on RS485 Internal Ethernet BUS — IEEE 802.3 (TCP/IP Protocol) 10/100 Base 2 “The operating parameters for the WaveMux optical transmission modules are: Input Power Level Output Power Level” p. 4-2

’327 Patent	Pirelli System and Hooijmans

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items)			Alarm			
				Value	Meas Unit	Type and Criteria	Thres.	Value	Meas Unit	Severity
Output modulation Fail	modout stat 1	D	C	ON				OFF		Major
Input modulation Fail	modin stat 1	D	C	ON				OFF		Major

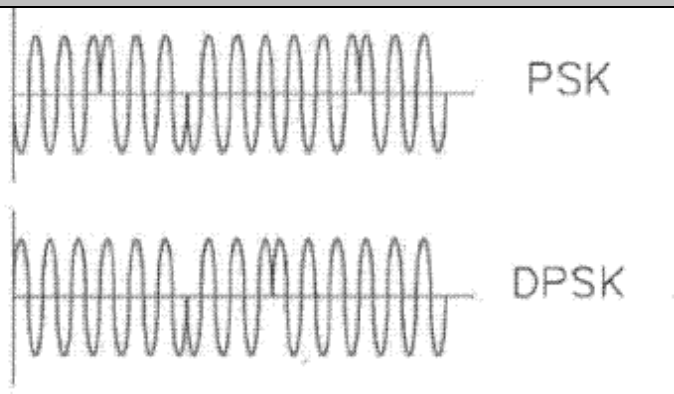
P. 4-3

One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by Hooijmans and the Background section of my opening expert report on invalidity.

See e.g. Hooijmans at:

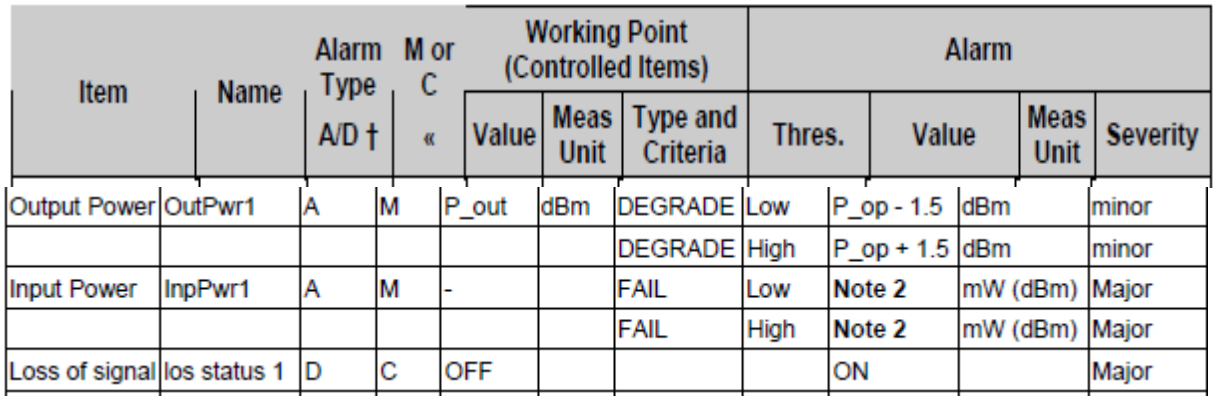
Hooijmans discloses various forms of phase modulation, including e.g., phase-shift keying (PSK) and differential phase shift keying (DPSK). *See, e.g.*, Hooijmans at 70-72.

Hooijmans illustrates exemplary PSK and DPSK modulation schemes, reproduced below:

’327 Patent	Pirelli System and Hooijmans
	 Hooijmans at Fig. 2.18. As was known in the prior art, Hooijmans describes that in PSK, the modulator adjusts the phase of a carrier signal between phase values, for example, 0 and 180 degrees, to communicate a bit value of a zero or a one. Hooijmans at 70-71. As known by a person of ordinary skill, Hooijmans describes that in DPSK, the modulator also adjusts the phase of a carrier signal, however, data is encoded using the difference in phase between successive signal transmissions as opposed to encoding each bit individually. Hooijmans at 71-72. A person of skill in the art of the invention would have understood that the phase modulation techniques disclosed by Hooijmans could be implemented without affecting the amplitude of the modulated signal. Furthermore, a person of ordinary skill in the art understands how to alter the phase of light while maintaining amplitude constant, for example, using simple $LiNbO_3$ electro-optic phase modulator. To the extent Plaintiff argues that the claims encompass modulation techniques in which amplitude varies during phase modulation, that was clearly within the art as well.

’327 Patent	Pirelli System and Hooijmans
Claim 11	
11. The card as recited in claim 1 wherein the plurality of thresholds indicate an increase in an optical energy level.	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. See above re claim 1 which is incorporated by reference herein. See also: See above re claim 1e, which is incorporated by reference herein. WaveMux Spec:

'327 Patent	Pirelli System and Hooijmans
	4.1 Supervisory Unit CMP-W Each WaveMux system site has at least one Control and Monitoring Processor Module (CMP-W), the heart of the management system. It controls all the modules at the site (optical modules as well as common modules), collects module information on one internal control bus (status, alarms, parameters, actions), and passes this information to: • a serial RS232 port to which the Local Craft Terminal can be connected. • an Ethernet bus to which: – Pirelli IEMS Software can be connected (via Q3 interface), or – Pirelli WaveLook Software can be connected using a PC with an Ethernet interface. CMP-W Module Parameters: CPU — Intel Pentium 133 MHz Memory/Interruptions/DMA Controller — Intel 82430HX (Triton II) PC/AT Memory — DRAM 16-32-64 or 128 MByte Cache — SRAM 256 kByte Internal Control BUS — PCI-based Ethernet HDLC on RS485 Internal Ethernet BUS — IEEE 802.3 (TCP/IP Protocol) 10/100 Base 2 "The operating parameters for the WaveMux optical transmission modules are: Input Power Level Output Power Level" p. 4-2

'327 Patent	Pirelli System and Hooijmans
	

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items) Value	Meas Unit	Type and Criteria	Alarm Thres.	Value	Meas Unit	Severity
Output Power	OutPwr1	A	M	P_out	dBm	DEGRADE	Low	P_op - 1.5	dBm	minor
						DEGRADE	High	P_op + 1.5	dBm	minor
Input Power	InpPwr1	A	M	-		FAIL	Low	**Note 2**	mW (dBm)	Major
						FAIL	High	**Note 2**	mW (dBm)	Major
Loss of signal	los status 1	D	C	OFF				ON		Major

P. 4-3

One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by the Background section of my opening expert report on invalidity.

Claim 14	
[14pre] 14. A transceiver card for a telecommunications box for transmitting data over a first optical fiber and receiving data over a second optical fiber, the card comprising:	*See* claim 1pre.
[14a] a transmitter for transmitting data over the first optical fiber, the transmitter having a laser, a modulator and a controller receiving input data and controlling the modulator as a function of the input data, the	*See* claim 1a.

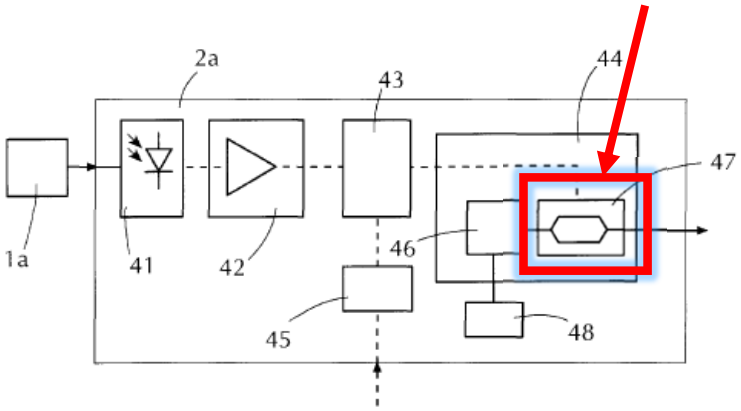
’327 Patent	Pirelli System and Hooijmans
transmitter transmitting optical signals for telecommunication as a function of the input data;	
[14b] a fiber output optically connected to the laser for connecting the first optical fiber to the card;	*See* claim 1b.
[14c] a fiber input for connecting the second optical fiber to the card;	*See* claim 1c.
[14d] a receiver optically connected to the fiber input for receiving data from the second optical fiber; and	*See* claim 1d.
[14e] an energy level detector optically connected between the receiver and the fiber input input to measure an energy level of the optical signals, the energy level detector including a threshold indicating a drop in amplitude of a phase-modulated signal.	*See* claim 1e and 10.
Claim 16	
16. The card as recited in claim 14 wherein the modulator is a phase modulator.	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. See above re claim 1 which is incorporated by reference herein. See also: See above re claim 1a which is incorporated by reference herein.

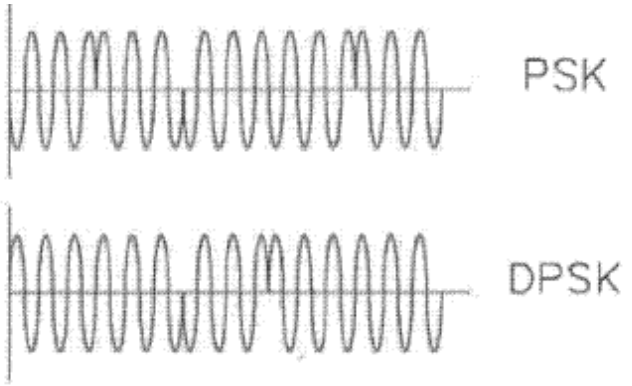
'327 Patent	Pirelli System and Hooijmans
	DWDM Overview: "WaveMux6400 . . . can be used with any digital transmission format, including RZ transmission standards." P. 1-1 "Wavelength Converter Module - Externally Modulated - Normal (WCM-EM-Nxx) converts the Optical Line Terminal Equipment transmitter wavelength to a pre-selected wavelength for compatibility with Dense Wavelength Division Multiplexer equipment. WCM-EM-Nxx is a Lithium Niobate, externally modulated, distributed feedback, re-transmitter module." P. 1-5; *see also id.*, FIG. 1-2 (WCM-EM-Nxx); WaveMux Spec at 3-1 WaveMux Spec: "Table 4-1 : Wavelength Converter Module (WCM-EM-N and WCM-EM-M) Alarms:

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items)			Alarm			
				Value	Meas Unit	Type and Criteria	Thres.	Value	Meas Unit	Severity
Output modulation Fail	modout stat 1	D	C	ON				OFF		Major
Input modulation Fail	modin stat 1	D	C	ON				OFF		Major

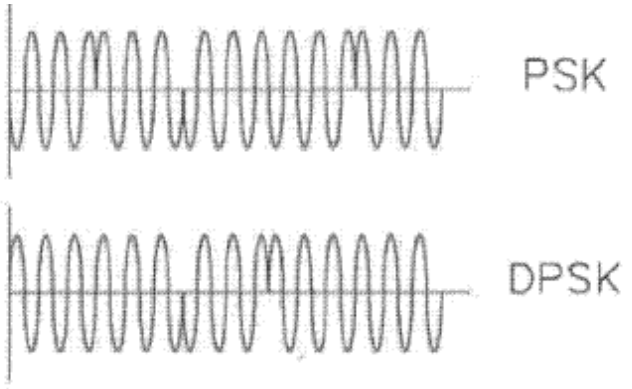
'510 Patent:

"The optical-signal transmitting station comprises generation means for generating transmission signals at least two 10 wavelengths included in a band of predetermined width . . . In particular, said generation means for generating transmission signals comprises, for each of said

’327 Patent	Pirelli System and Hooijmans
	transmission signals, a continuous-emission laser associated with an external modulator.” 4:8-10, 4:66-5:2 “The electric output signal from the amplifier 42 is fed to a piloting circuit 43 of a modulated laser emitter, generally identified by 44, which is adapted to generate an optical signal at the selected wavelength containing the input signal information . . . The modulated laser emitter 44 comprises . . . an external modulator 47, of the Mach-Zender type for example, piloted by the output signal from circuit 43.” 7:61-8:3; FIG. 29:  FIG. 29 “[A]n optical signal transmitting station comprising optical signal generating means for simultaneously generating at least two optical transmission signals at two different wavelengths in a band of predetermined width” cl. 1 “wherein said generating means of said transmitting station further comprises optical signal generating means controlled by said electrical signals for providing said optical transmission signals” cl. 2 “The system of claim 1, wherein said generating means comprises continuous-emission lasers

’327 Patent	Pirelli System and Hooijmans
	coupled to modulators for generating said optical transmission signals.” cl. 8 One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by Hooijmans and the Background section of my opening expert report on invalidity. *See e.g.* Hooijmans at: Hooijmans discloses various forms of phase modulation, including e.g., phase-shift keying (PSK) and differential phase shift keying (DPSK). *See, e.g.*, Hooijmans at 70-72. Hooijmans illustrates exemplary PSK and DPSK modulation schemes, reproduced below:  Hooijmans at Fig. 2.18. As was known in the prior art, Hooijmans describes that in PSK, the modulator adjusts the phase of a carrier signal between phase values, for example, 0 and 180 degrees, to communicate a bit value of a zero or a one. Hooijmans at 70-71. As known by a person of ordinary skill, Hooijmans describes that in DPSK, the modulator also

’327 Patent	Pirelli System and Hooijmans
	adjusts the phase of a carrier signal, however, data is encoded using the difference in phase between successive signal transmissions as opposed to encoding each bit individually. Hooijmans at 71-72. A person of skill in the art of the invention would have understood that the phase modulation techniques disclosed by Hooijmans could be implemented without affecting the amplitude of the modulated signal. Furthermore, a person of ordinary skill in the art understands how to alter the phase of light while maintaining amplitude constant, for example, using simple $LiNbO_3$ electro-optic phase modulator. To the extent Plaintiff argues that the claims encompass modulation techniques in which amplitude varies during phase modulation, that was clearly within the art as well.
Claim 17	
17. The card as recited in claim 14 wherein the receiver receives phase-modulated signals.	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. See above re claims 1 and 16 which are incorporated by reference herein. See also: See above re claim 1d which is incorporated by reference herein. One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by Hooijmans the Background section of my opening expert report on invalidity. *See e.g.* Hooijmans at: Hooijmans discloses various forms of phase modulation, including e.g., phase-shift keying (PSK) and differential phase shift keying (DPSK). *See, e.g.,* Hooijmans at 70-72.

’327 Patent	Pirelli System and Hooijmans
	Hooijmans illustrates exemplary PSK and DPSK modulation schemes, reproduced below:  Hooijmans at Fig. 2.18. As was known in the prior art, Hooijmans describes that in PSK, the modulator adjusts the phase of a carrier signal between phase values, for example, 0 and 180 degrees, to communicate a bit value of a zero or a one. Hooijmans at 70-71. As known by a person of ordinary skill, Hooijmans describes that in DPSK, the modulator also adjusts the phase of a carrier signal, however, data is encoded using the difference in phase between successive signal transmissions as opposed to encoding each bit individually. Hooijmans at 71-72. A person of skill in the art of the invention would have understood that the phase modulation techniques disclosed by Hooijmans could be implemented without affecting the amplitude of the modulated signal. Furthermore, a person of ordinary skill in the art understands how to alter the phase of light while maintaining amplitude constant, for example, using simple $LiNbO_3$ electro-optic phase modulator. To the extent Plaintiff argues that the claims encompass modulation techniques in

’327 Patent	Pirelli System and Hooijmans
	which amplitude varies during phase modulation, that was clearly within the art as well.
Claim 18	
18. The card as recited in claim 14 wherein the energy level detector includes a photodiode and a liner or logarithmic amplifier scaling an output of the photodiode.	*See* claim 5.
Claim 22	
22. The card as recited in claim 14 wherein the plurality of thresholds bound an acceptable energy range for the received light.	The Pirelli System discloses this claim limitation explicitly, inherently, or as a matter of common sense, or it would have been obvious to add missing aspects of the limitation. See above re claims 1e and 10, which are incorporated by reference herein. See also: WaveMux Spec:

'327 Patent	Pirelli System and Hooijmans
	4.1 Supervisory Unit CMP-W Each WaveMux system site has at least one Control and Monitoring Processor Module (CMP-W), the heart of the management system. It controls all the modules at the site (optical modules as well as common modules), collects module information on one internal control bus (status, alarms, parameters, actions), and passes this information to: • a serial RS232 port to which the Local Craft Terminal can be connected. • an Ethernet bus to which: – Pirelli IEMS Software can be connected (via Q3 interface), or – Pirelli WaveLook Software can be connected using a PC with an Ethernet interface. CMP-W Module Parameters: CPU — Intel Pentium 133 MHz Memory/Interruptions/DMA Controller — Intel 82430HX (Triton II) PC/AT Memory — DRAM 16-32-64 or 128 MByte Cache — SRAM 256 kByte Internal Control BUS — PCI-based Ethernet HDLC on RS485 Internal Ethernet BUS — IEEE 802.3 (TCP/IP Protocol) 10/100 Base 2 "The operating parameters for the WaveMux optical transmission modules are: Input Power Level Output Power Level" p. 4-2

'327 Patent	Pirelli System and Hooijmans

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items) Value	Meas Unit	Type and Criteria	Alarm Thres.	Value	Meas Unit	Severity
Output modulation Fail	modout stat 1	D	C	ON				OFF		Major
Input modulation Fail	modin stat 1	D	C	ON				OFF		Major

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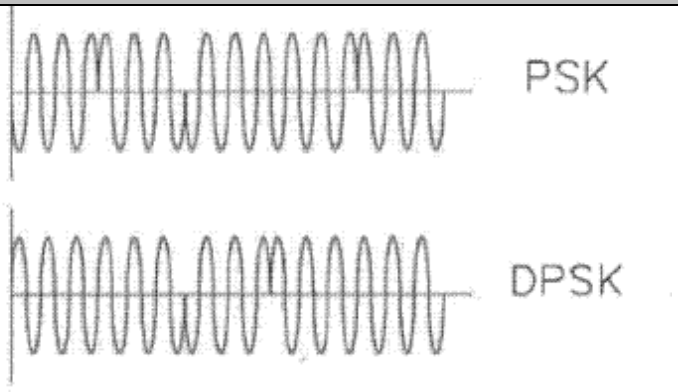
One of ordinary skill would find this limitation disclosed either expressly or inherently in the teachings of The Pirelli System and its respective incorporated disclosures taken as a whole, or in combination with the state of the art at the time of the alleged invention, as evidenced, for example, by Hooijmans and the Background section of my opening expert report on invalidity.

See e.g. Hooijmans at:

Hooijmans discloses various forms of phase modulation, including e.g., phase-shift keying (PSK) and differential phase shift keying (DPSK). *See, e.g.*, Hooijmans at 70-72.

Hooijmans illustrates exemplary PSK and DPSK modulation schemes, reproduced below:

’327 Patent	Pirelli System and Hooijmans
	 Hooijmans at Fig. 2.18. As was known in the prior art, Hooijmans describes that in PSK, the modulator adjusts the phase of a carrier signal between phase values, for example, 0 and 180 degrees, to communicate a bit value of a zero or a one. Hooijmans at 70-71. As known by a person of ordinary skill, Hooijmans describes that in DPSK, the modulator also adjusts the phase of a carrier signal, however, data is encoded using the difference in phase between successive signal transmissions as opposed to encoding each bit individually. Hooijmans at 71-72. A person of skill in the art of the invention would have understood that the phase modulation techniques disclosed by Hooijmans could be implemented without affecting the amplitude of the modulated signal. Furthermore, a person of ordinary skill in the art understands how to alter the phase of light while maintaining amplitude constant, for example, using simple $LiNbO_3$ electro-optic phase modulator. To the extent Plaintiff argues that the claims encompass modulation techniques in which amplitude varies during phase modulation, that was clearly within the art as well.
Claim 25	
[25pre] 25. A transceiver card for	*See* claim 1pre.

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a telecommunications box for transmitting data over a first optical fiber and receiving data over a second optical fiber, the card comprising:	
[25a] a transmitter for transmitting data over the first optical fiber, the transmitter having a laser, a modulator and a controller receiving input data and controlling the modulator as a function of the input data, the transmitter transmitting optical signals for telecommunication as a function of the input data;	*See* claim 1a.
[25b] a fiber output optically connected to the laser for connecting the first optical fiber to the card;	*See* claim 1b.
[25c] a fiber input for connecting the second optical fiber to the card;	*See* claim 1c.
[25d] a receiver optically connected to the fiber input for receiving data from the second optical fiber; and	*See* claim 1d.
[25e] an energy level detector to measure an energy level of the optical signals, the energy level detector including a threshold indicating a drop in amplitude of a	*See* claim 1e and 10.

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phase-modulated signal.	
Claim 28	
28. The card as recited in claim 25 wherein the receiver receives phase-modulated signals.	*See* claim 17
Claim 29	
29. The card as recited in claim 25 wherein the energy level detector includes a photodiode and a liner or logarithmic amplifier scaling an output of the photodiode.	*See* claim 5.
Claim 33	
33. The card as recited in claim 25 wherein the plurality of thresholds bound an acceptable energy range for the received light.	*See* claim 22.
Claim 36	
[36pre] 36. A transceiver card for a telecommunications box for transmitting data over a first optical fiber and receiving data over a second optical fiber, the card comprising:	*See* claim 1pre.
[36a] a transmitter for transmitting data over the first optical fiber, the transmitter having a laser, a modulator and a controller receiving input data and controlling the modulator as a function of the input data, the transmitter transmitting optical	*See* claim 1a.

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signals for telecommunication as a function of the input data;	
[36b] a fiber output optically connected to the laser for connecting the first optical fiber to the card;	*See* claim 1b.
[36c] a fiber input for connecting the second optical fiber to the card;	*See* claim 1c.
[36d] a receiver optically connected to the fiber input for receiving data from the second optical fiber;	*See* claim 1d.
[36e] a splitter to split at least a portion of the optical signals to form a split optical signal,	*See* claim 1e. See also RXT Spec:

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	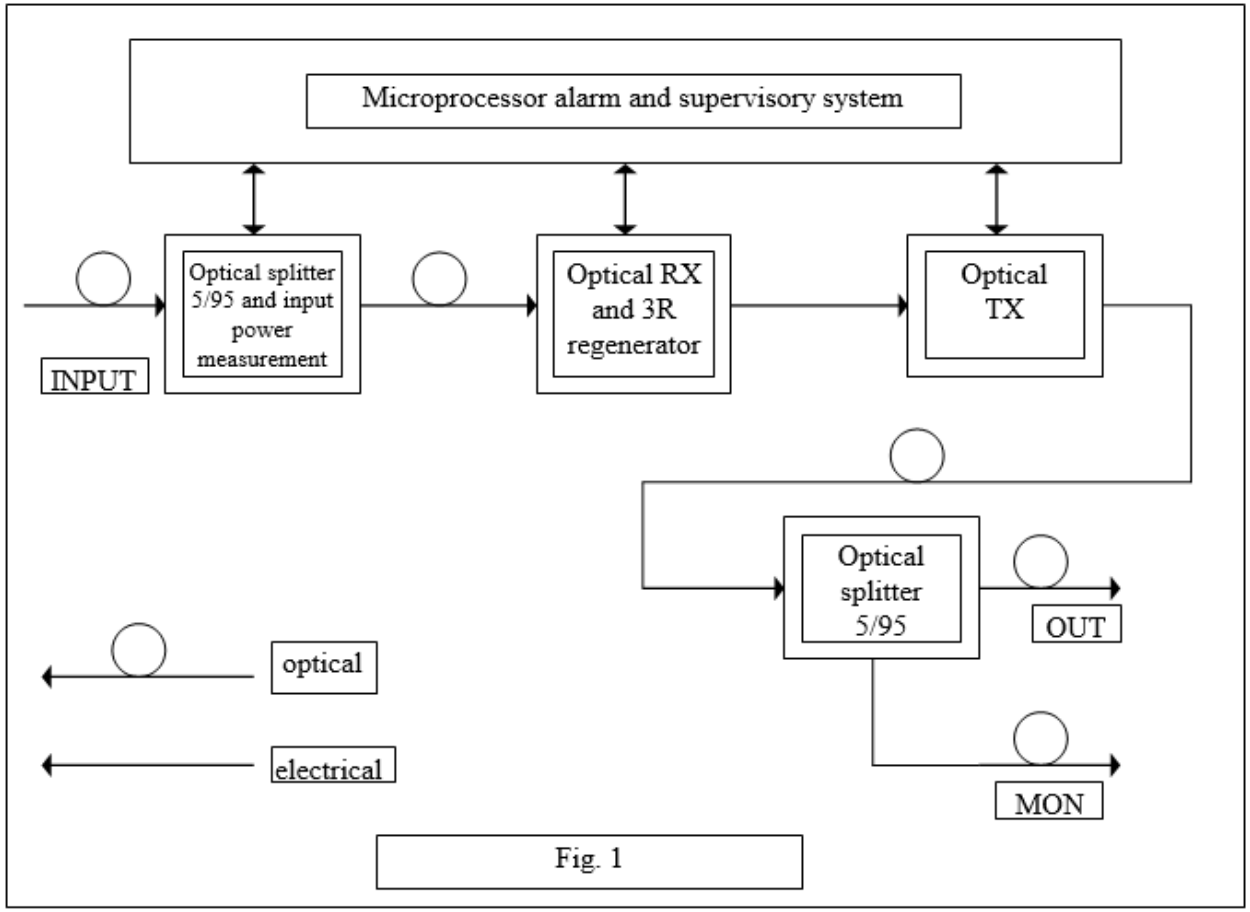 P. 19

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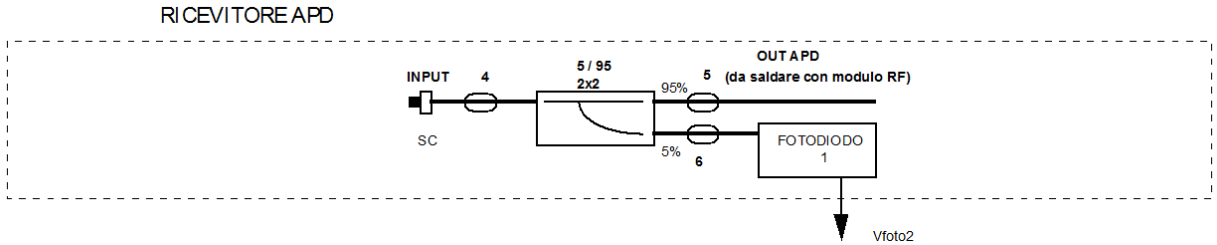
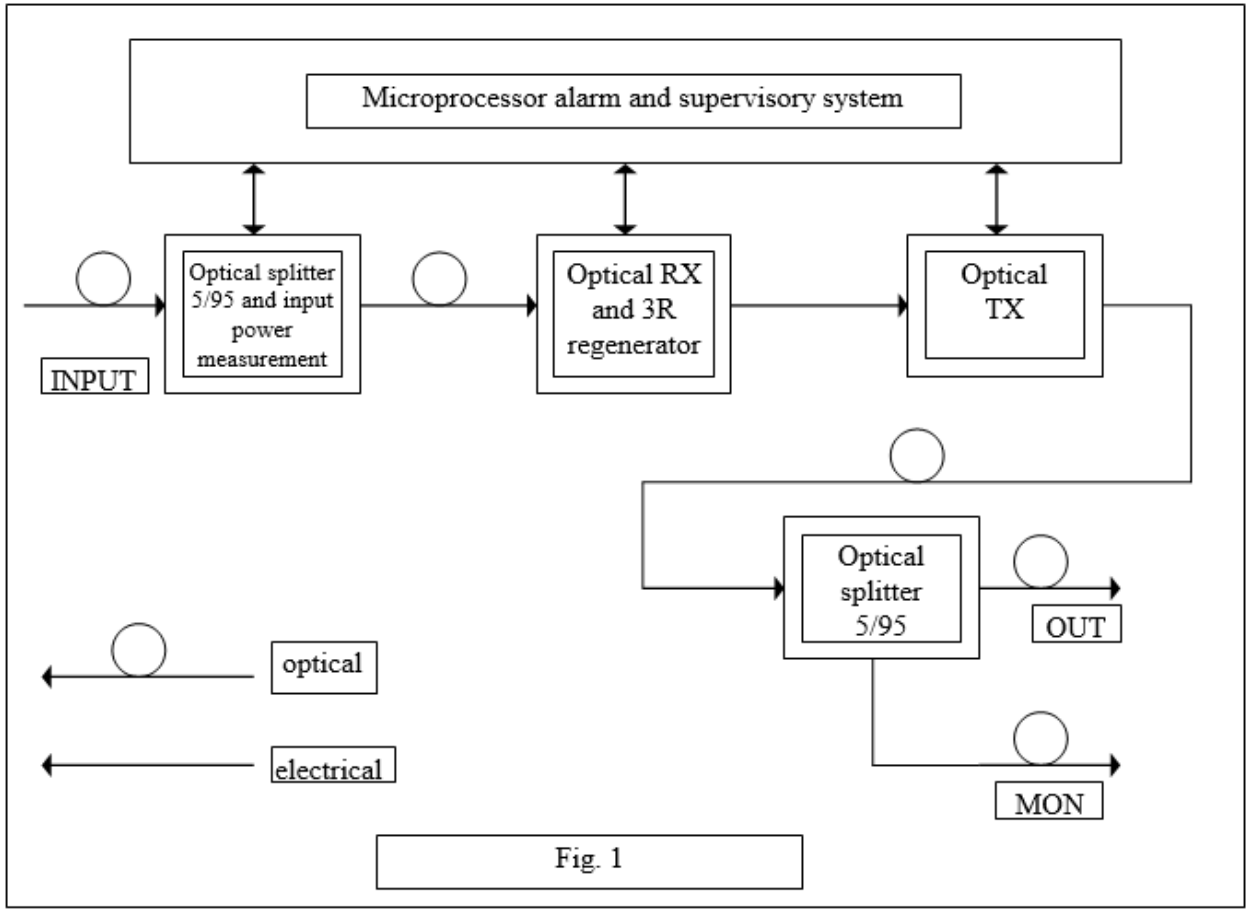
	 Figure 5. P. 22
[36f] a photodetector to measure the split optical signal, the photodetector outputting an electric voltage to correlating to an optical power of the split optical signal, and	*See* claim 1e.
[36g] a detector controller connected electrically to the photodetector.	*See* claim 1e. See also RXT Spec:

’327 Patent	Pirelli System and Hooijmans
	 P. 19

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WaveMux Spec:

Table 4-2 : **Receive Transponders (RXT-DM-N and RXT-DM-M) Alarms**

Item	Name	Alarm Type A/D †	M or C «	Working Point (Controlled Items)				Alarm		
				Value	Meas. Unit	Type and Criteria	Thres.	Value	Meas. Unit	Severity*
Laser Current	LasCurr1	A	C	I_op	mA	DEGRADE	High	60	mA	minor
						FAIL	High	70	mA	Major
Laser Power	LasPwr1	A	C	P_op	mW	DEGRADE	Low	P_op * 0.7	mW	minor
						DEGRADE	High	P_op * 1.4	mW	minor
Output Power	OutPwr1	A	M	P_out	dBm	DEGRADE	Low	P_op - 1.5	dBm	minor
						DEGRADE	High	P_op + 1.5	dBm	minor
Input Power	InpPwr1	A	M	-		FAIL	Low	**Note 2**	mW (dBm)	Major
						FAIL	High	**Note 2**	mW (dBm)	Major
Loss of signal	los status 1	D	C	OFF				ON		Major
Input modulation Fail	modin stat 1	D	C	ON				OFF		Major
IPO IN	ipoin stat 1	D	C							Not def.
IPO OUT	ipoout stat 1	D	C							Not def.
OPIN	opin stat 1	D	C							Not def.
PINLOW	pinlow stat 1	D	C	OFF				ON		Major
SHUTDOWN RELAY	Rel.LasOff 1	D	M							

« Monitored or Controlled
† Analog or Digital
Note 2 – Input power alarms for TX/RX modules Low 0.00125 (-29)
High 0.2 (-7)

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Claim 38	
38. The card as recited in claim 36 further comprising a photodiode and a liner or logarithmic amplifier scaling an output of the photodiode.	*See* claim 5.